# Validation of the Social Emotional Learning Skills Class Assessment (SELS-CA)

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## Abstract

This article provides a preliminary report on the construct validity and internal consistency of the Social Emotional Learning (SEL) Skills Class Assessment (SELS-CA), which is the accompanying measurement tool of the SEL curriculum *Open Circle*. This validation was part of a larger implementation and evaluation study using *Open Circle* programming to evaluate its effect on the SEL skill acquisition of elementary students enrolled in a large public urban school in the Southeastern U.S. (McDaniel et al., 2022). We examined the reliability and validity of the SELS-CA based on 247 teacher ratings of students in the second through fifth grade. Factor analytic procedures revealed a robust three-factor structure, resulting in three subscales, subsequently titled Strategies for Emotional/Behavioral Regulation, Cooperative Behaviors, and Prosocial Skills. SELS-CA total scores revealed strong internal consistency, with adequate internal consistency noted for the three resultant subscales. Limitations and future research needs are discussed, as are implications for research and practice in school settings.

Key Words: social emotional learning, SEL Skills Class Assessment, psychometric evaluation, *Open Circle*, measurement tool validation, behavioral regulation, cooperative behaviors, prosocial skills, elementary students, schools

## Introduction

Social and emotional learning (SEL) programming in schools typically refers to explicit instruction to teach and promote (1) student self-awareness and self-management, social awareness, positive relationships, and responsibility in decision making; and (2) increase positive attributions about self, peers, teachers, and school in general (Collaborative for Academic, Social, and Emotional Learning; CASEL, 2020). As the field of education moves to include explicit instructional time for SEL, it is important to identify evidence-based programs and optimal delivery modes based on school and population characteristics that can yield the most efficacious results (Domitrovich et al., 2017; Greenberg et al., 2017; Jones et al., 2019). One barrier to identifying evidence-based SEL programming is the lack of psychometrically valid and reliable measurement tools (Jones & Doolittle, 2017; McKown, 2019; Ura et al., 2020). Although the number of psychometrically sound assessment of social–emotional skills has increased considerably in the last few years (Jones et al., 2019), matching programming focus, student population, and assessment content requires nuanced considerations that can present a barrier for some school-based practitioners.

As more schools are moving towards universal and standardized SEL programming, considerations for selecting a program include not just evidence of program effectiveness with the population of focus, but also instructional procedures and activities, the targeting of specific SEL skills, and the potential for purposeful integration and generalization into other content areas, frameworks (e.g., Positive Behavioral Interventions and Supports or PBIS; Lewis & Sugai, 1999), and throughout the school day (Elbertson et al., 2009; Lawson et al., 2019; Murano et al., 2020). Examination of SEL programs also highlights the importance of valid and reliable SEL assessment tools to monitor and evaluate the success of SEL programs, which is associated with meeting students' academic and social needs and improving their well-being (Haggerty et al., 2011; Jones & Doolittle, 2017). Indeed, Hamilton and Schwartz (2019) highlight the impact that selection of appropriate measures for SEL skills has on teachers' efforts to directly enhance the quality of their instruction and classroom management.

While a variety of accessible assessment tools for measuring youth SEL exist (see Haggerty et al., 2011), it should be noted that a lack of validated assessments presents a common challenge and often leads to recommendations of using multiple tools that can complement each other, requiring more time and coordination from school professionals (Haggerty et al., 2011; Wolpert et al., 2015). Other concerns with SEL skills assessment pertain to a lack of conceptual clarity about which domains or constructs need to be assessed and variability

in terms of the scope covered by available assessments, which don't always reflect the multidimensional nature of SEL (Humphrey, 2013). These issues have practical implications for assessing SEL, as there are very few validated measures capturing the full gamut of the domains of social–emotional competence that form the core of SEL (Merrell & Gueldner, 2010; Humphrey, 2013). Haggerty et al. (2011) asserted that program-specific or curriculum-based measurement can provide an appropriate and streamlined evaluation of SEL interventions that correspond with school efforts to improve SEL. Utilizing a customized, validated tool that aligns with the goals and content of an SEL program enhances the validity of the evaluation process and yields meaningful and practical implications (Jones et al., 2019; Ura et al., 2020).

While a plethora of universal programs for elementary student SEL instruction are available, few include accompanying measurement tools that have been extensively psychometrically evaluated, thus necessitating more empirical evidence in assessments (Anthony et al., 2020). Such is the case with *Open Circle,* a promising SEL universal program for Grade K–5 students that aims to develop children's skills for recognizing and managing emotions and building empathy, positive relationships, and problem solving (Hennessey, 2007). *Open Circle* is included in CASEL'S Program Guide of effective programs for diverse elementary students (CASEL, 2013) and has been specifically evaluated within an urban elementary context, with preliminary results from a quasi-experimental study pointing to significant gains in teacher-reported social skills for this population (Hennessey, 2007). *Open Circle* rates highly for its extensive focus on the school and family context and includes training information to support implementation with diverse students (CASEL, 2013). While *Open Circle* includes specific tools for measuring core student SEL skills and recommends these tools for measuring outcomes to determine intervention success, no psychometric data are provided for the accompanying scales.

The *Open Circle* manual stresses that educators utilizing this program should use empirical data to inform the selection of targeted interventions, whether those are delivered as universal, supplemental, or individual lessons (Hennessey, 2007). For researchers who plan to evaluate the effectiveness of the *Open Circle* program with diverse student populations, this necessitates validating the measurement tool that is designed to reflect the *Open Circle* curriculum. Considering the growing interest in supporting students' SEL development (Cook et al., 2015) and the demand for appropriate measurements that align with specific SEL programming (Haggerty et al., 2011; Ura et al., 2020), the validation and application of robust and easy-to-use SEL measures with diverse student populations is paramount.

As the population of focus for this study was at a large, diverse, urban elementary school with ongoing SEL and behavioral concerns that required intervention, we selected *Open Circle* for SEL programming due to the school's urban context and determined SEL needs. *Open Circle* extensively addresses contexts that promote and reinforce SEL beyond the classroom, including the school, family, and community. One contextual strategy for more effective and feasible SEL delivery in schools with significant SEL needs is to integrate it with an existing PBIS framework (Lewis & Sugai, 1999). PBIS is a three-tiered framework for preventing and treating social, emotional, and behavioral needs (Lewis & Sugai, 1999). Tier 1 provides universal, preventative schoolwide expectations, a recognition system, and data analysis. Tier 2 provides educators with a process to match social, emotional, or behavioral needs with evidence-based, targeted interventions. Tier 3 provides a small group of students with individualized, intensive behavioral interventions. *Open Circle* aligns well with PBIS, and the intervention school was already on year three of implementing PBIS Tiers 1 and 2 with fidelity when we initiated our *Open Circle* intervention (McDaniel et al., 2022). While a thorough discussion of the intervention is beyond the scope of this psychometric study, more context on the *Open Circle* curriculum and characteristics of the school are provided in the methods section.

## Purpose

The purpose of the current study was to conduct a psychometric evaluation of the SEL Skills Class Assessment (SELS-CA), the accompanying measurement tool of the SEL curriculum *Open Circle*. This validation was part of a larger, year-long implementation and evaluation study using the *Open Circle* program to evaluate its effect on the SEL skill acquisition of elementary students enrolled in a large, urban public school in the Southeast. While the *Open Circle* manual details the construction and piloting of this tool with teachers, the SELS-CA lacks crucial psychometric data pertaining to structural validity and internal consistency. Hence, guided by our overall purpose of validating the SEL Skills Class Assessment (SELS-CA) after obtaining teacher ratings of 247 elementary students enrolled in the second through fifth grades, we examined the following research questions:

Research Question 1: What is the SELS-CA factorial structure based on obtained teacher rating of students from our target school?

Research Question 2: What is the internal consistency of the SELS-CA based on obtained teacher ratings of students from our target school?

## Method

### Participants

A total of 15 teachers of Grades 2 through 5, respectively, provided SEL ratings for 247 elementary students for the validation of the SEL Skills Class Assessment, which was part of a larger implementation study of *Open Circle* (McDaniel et al., 2022). In terms of student distribution by grade, approximately 25% ($n$ = 61) were enrolled in the second grade, 14% ($n$ = 35) in the third grade, 32% ($n$ = 80) in the fourth grade, and 29% ($n$ = 71) in the fifth grade. Schoolwide data regarding race/ethnicity distribution indicated that 65% of enrolled students were White, 21% Black/African American, and 15% Hispanic. In terms of socioeconomic status, 35% were identified as economically disadvantaged and received free or reduced-price lunch. Additional schoolwide data are provided in Table 1. It is important to note that in the year prior to data collection, only 42% of the students were academically proficient according to the state reporting calculation across domains (state average is 46.5%), and 23% were chronically absent (substantially higher than the state average of 12.5% and national average of 13%).

Table 1. School Demographics and Schoolwide Data

| Year | Total Students | ODR/ Student Percentage | Disorderly Infractions *N* | Chronic Absenteeism Rate | Academic Proficiency Score |
|---|---|---|---|---|---|
| Baseline 1<br>PBIS Tier 1 | 502 | 3% | 0 | NR | ND |
| Baseline 2<br>PBIS Tier 1 | 538 | 3% | 6 | 10.99% | 73.48% |
| Baseline 3<br>PBIS Tier 1& 2 | 514 | 5% | 16 | 15.6% | 68.63% |
| Intervention | 537 | 6% | 10 | 6.82% | 70.7% |

### Measure: SEL Skills Class Assessment

The SEL Skills Class Assessment (SELS-CA) is a 21-item teacher-report instrument used to measure teacher perceptions of school-aged students' social skills. A total score is generally used for interpretive purposes, with items rated on a four-point Likert scale ranging from *0* = *Never* to *3* = *Always*. Sample items include, "My students can track how their feelings change throughout the day," and "My students cooperate with others." As the SELS-CA was developed primarily for practical purposes in evaluating the success of the *Open*

*Circle* program, it lacks adequate psychometric data. Therefore, we used data from this study to first examine the structural validity and reliability of this scale and then to identify essential items and subscales that could be used for a more nuanced interpretation. Psychometric results, described below, supported the use of 19 items consisting of three emerging subscales: (1) Strategies for Emotional/Behavioral Regulation, (2) Cooperative Behaviors, and (3) Prosocial Skills.

## Procedure

### *Intervention Context*

Before evaluation of the *Open Circle* assessment in the target school and subsequent intervention, we received approval from the principal at the school, the school district's director of research, and the university's research review board. A full day of training was provided by *Open Circle* training personnel to orient teachers to both the curriculum and outcome measure evaluated in this study prior to implementation of the intervention and data collection.

The *Open Circle* curriculum is designed to be implemented either universally or schoolwide, as well as at Tier 2 with 36 supplementary lessons. *Open Circle* is designed to be implemented across a full year, each year. The classroom lessons for K–5 provide skill development and practice activities to teach foundational social and emotional skills. The classroom teacher leads students in weekly 20–40 minute lessons that reinforce necessary social–emotional skills for school, community, and home. Classroom teachers are also expected to integrate the SEL components taught throughout their day and communicate those new skills to families and caregivers. In an effort to integrate *Open Circle* with the existing PBIS framework, the educators themselves designed a strategy to integrate new social–emotional learning skills (e.g., sharing, taking turns, showing empathy, disagreeing respectfully) and framed them within the teaching and reinforcement of the Tier 1 PBIS expectations. In doing so, educators were able to continue to use one common, consistent language with their students around social, emotional, and behavioral expectations and performance. This approach is aligned with recommendations to leverage existing PBIS teaching systems to extend to SEL teaching (Barret et al., 2018). Specifically, the target school did not adopt an "either/or" approach where one intervention (i.e., PBIS) was abandoned and another adopted. Instead, they took a thoughtful, integrated approach to add SEL to their existing PBIS framework.

### *Data Analysis Plan*

First, we performed an exploratory factor analysis (EFA) to determine structural validity of the SELS-CA. Because no study to date has reported the psychometric properties of the SELS-CA since its initial development by the

*Open Circle*, performing an EFA was needed to clarify the associations between the items and the substructure of the scale. Subsequently, a confirmatory factor analysis (CFA) was conducted to validate the factor structure (Child, 2006). Cronbach's α was employed to test internal reliability. Descriptive data (i.e., overall means and standard deviations, as well as by grade level) and bivariate correlation coefficients were examined to provide a reference for applying the SELS-CA to elementary school students. Subscale mean values were calculated by adding up the scores of all items in the distinct subscales that emerged from the EFA and CFA results.

## Results

### Psychometric Evaluation of the SELS-CA

Preliminary analysis for performing EFA supported the adequacy of the SELS-CA data, with a Kaiser-Meyer-Olkin value of .86 and a significant Barlett's test of sphericity ($p < .001$). Subsequently, we conducted an EFA with the original 21 items, using principal axis factoring and promax oblique rotation. Considering the communalities, two items—Question 9 (My students' recognize others' body language) and Question 16 (My students ask for help with problems)—were eliminated due to low factor loadings that were under .2 (Child, 2006). Finally, the analysis yielded a three-factor solution, which explained 41% of the total variance (see Table 2). Factor 1 taps into students' ability to manage their feelings and behaviors to achieve their social/academic goals. Factor 2 reflects students' attitudes to interact, cooperate, or seek help from others, while Factor 3 reflects the way students react to situations provoking negative emotions. Given the contents of each cluster, we named the resultant subscales as Strategies for Emotional/Behavioral Regulation (Factor 1; 10 items), Cooperative Behaviors (Factor 2; 5 items), and Prosocial Skills (Factor 3; 4 items).

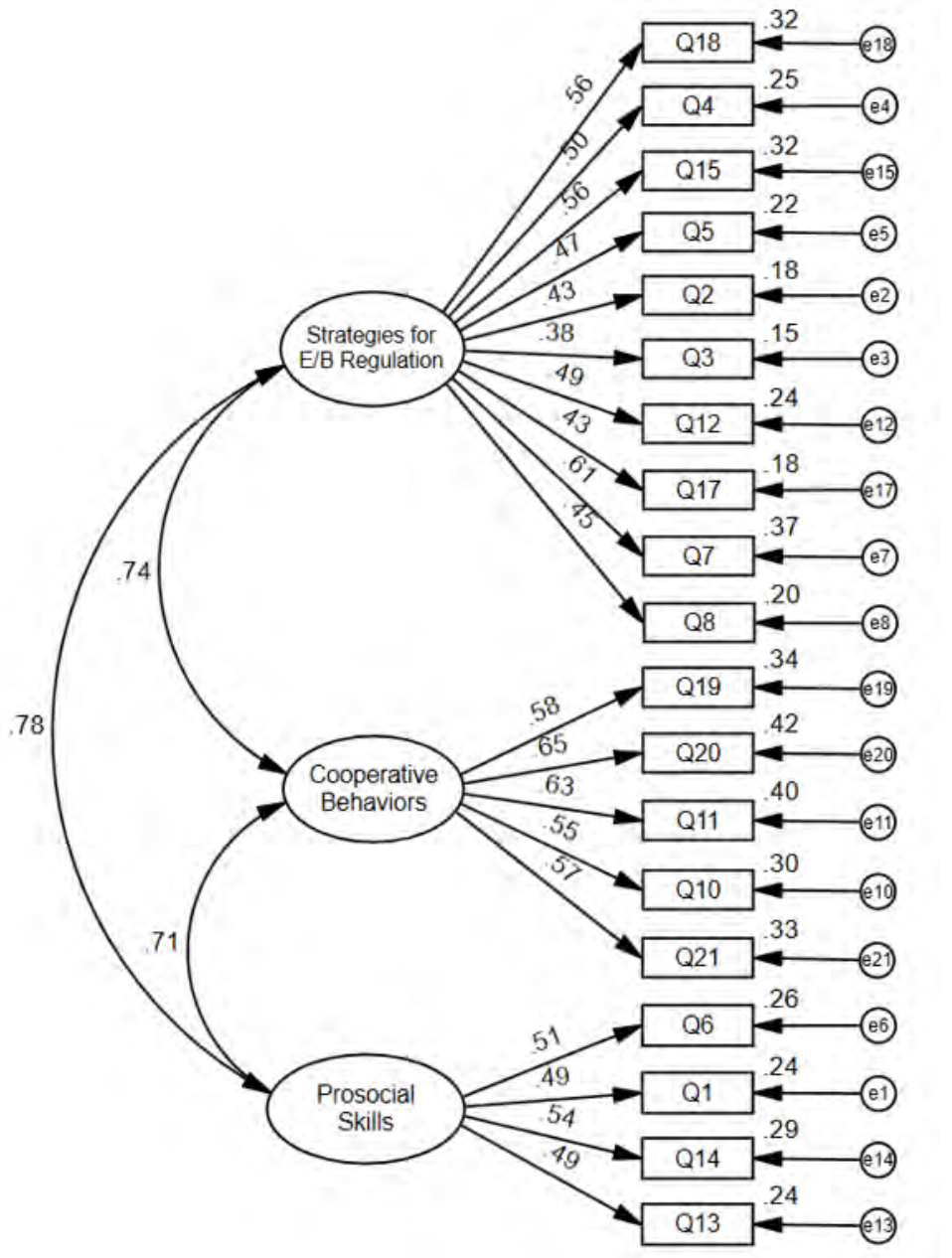
We followed up with a confirmatory factor analysis to examine data fit for our final model (see Figure 1). We used the goodness-of-fit criteria proposed by Hooper et al. (2008), including the Tucker–Lewis index (TLI ≥ .90), the comparative fit index (CFI ≥ .90), the root mean square error of approximation (RMSEA ≤ .07), and the standardized root mean square residual (SRMR ≤ .08). Our results indicated a good model fit of the data: TLI = .91; CFI = .92; RMSEA = .04; and SRMR = .05, whereas the unidimensional model indicated a poor model fit of the data: TLI = .84; CFI = .86; RMSEA = .06; and SRMR = .06. The standardized factor loadings of 19 items in the final three-factor solution ranged from .38 to .65, with correlation coefficients between the three latent variables ranging between .71 and .78.

Table 2. Results of Exploratory Factor Analysis: Factor Loadings for the SEL Skills Class Assessment

| No. | Item | Factor | | |
|---|---|---|---|---|
| | | **1** | 2 | 3 |
| 18 | My students brainstorm and evaluate solutions to problems. | **.68** | .15 | -.17 |
| 4 | My students use calm breathing when they are upset. | **.58** | -.17 | .13 |
| 15 | When faced with a problem, my students first stop and calm down. | **.50** | .10 | .03 |
| 5 | My students use positive self-talk when they feel discouraged. | **.48** | -.16 | .19 |
| 2 | My students can identify feelings of characters in stories. | **.43** | .14 | -.08 |
| 3 | My students can track how their feelings change throughout the day. | **.42** | -.03 | .07 |
| 12 | My students compliment other students. | **.32** | .12 | .16 |
| 17 | My students set positive goals. | **.31** | .16 | .18 |
| 7 | My students work hard to overcome obstacles when they arise. | **.26** | .25 | .22 |
| 8 | My students understand the feelings of others. | **.21** | .17 | .18 |
| 19 | My students follow classroom rules. | .01 | **.78** | -.16 |
| 20 | My students listen when others are talking. | -.07 | **.66** | .09 |
| 11 | My students include others. | -.20 | **.48** | .45 |
| 10 | My students cooperate with others. | .30 | **.45** | -.10 |
| 21 | My students tell a responsible adult when they see a dangerous or destructive behavior. | .03 | **.36** | .23 |
| 6 | My students can express angry feelings in ways that are not hurtful. | -.02 | -.01 | **.60** |
| 1 | My students can recognize and name their feelings. | .24 | -.22 | **.48** |
| 14 | My students act as allies when they see bullying behavior. | .05 | .09 | **.46** |
| 13 | My students respond appropriately to annoying behavior. | .02 | .15 | **.36** |
| Eigenvalue | | 5.11 | 1.38 | 1.24 |

*Notes*. *N* = 247. Item in bold indicates its affiliation to the corresponding subscale. Factor 1 = Strategies for Emotional/Behavioral Regulation; Factor 2 = Cooperative Behaviors; Factor 3 = Prosocial Skills.

Figure 1. Results of Confirmatory Factor Analysis




*Note.* Strategies for E/B Regulation = Strategies for Emotional/Behavioral Regulation.

In terms of the scale reliability, Cronbach's αs were .78 for Strategies for Emotional/Behavioral Regulation, .73 for Cooperative Behaviors, .60 for Prosocial Skills, and .86 for the total scale, indicating a good internal consistency.

Descriptive statistics and Pearson correlation coefficients between the subscales are presented in Table 3. The bivariate correlation coefficients between the subscales were all significant as follows: (a) Strategies for E/B Regulation and Cooperative Behaviors (r =.57, p < .001), (b) Strategies for E/B Regulation and Prosocial Skills (r =.54, p < .001), and (c) Cooperative Behaviors and Prosocial Skills (r =.46, p < .001).

Table 3. Descriptive Statistics and Bivariate Correlations for the SEL Skills Class Assessment

| | Grade | *M* | *SD* | 1 | 2 | 3 |
|---|---|---|---|---|---|---|
| 1. Strategies for E/B Regulation | All | 18.63 | 5.48 | - | | |
| | 2nd | 18.43 | 4.74 | | | |
| | 3rd | 17.16 | 5.71 | | | |
| | 4th | 17.85 | 5.61 | | | |
| | 5th | 20.47 | 5.46 | | | |
| 2. Cooperative Behaviors | All | 11.48 | 2.75 | .57*** | - | |
| | 2nd | 11.18 | 2.80 | | | |
| | 3rd | 10.74 | 3.31 | | | |
| | 4th | 11.30 | 2.74 | | | |
| | 5th | 12.32 | 2.20 | | | |
| 3. Prosocial Skills | All | 7.61 | 2.55 | .54*** | .46*** | - |
| | 2nd | 7.14 | 2.52 | | | |
| | 3rd | 6.97 | 3.04 | | | |
| | 4th | 7.57 | 2.56 | | | |
| | 5th | 8.38 | 2.13 | | | |

*Notes.* $N = 247$. *** $p < .001$.

## Discussion

Despite an increased recognition of the importance of school-based, universal interventions for addressing the social–emotional skills of elementary-aged students and the plethora of indicated programs for such implementation, few studies have directly examined the effectiveness of *Open Circle* on improving relevant student- and school-level outcomes. As an initial attempt to fill this gap, our study first focused on validating the SEL Skills Class Assessment (SELS-CA), which is designed to measure students' social and emotional skills based on the perspective of their teacher. Results and discussion of our year-long implementation study are presented in another manuscript in this volume (McDaniel et al., 2022).

Our psychometric evaluation of the Open Circle SEL Instrument supported the use of 19 items (vs. the original 21) for this scale, with EFA results indicating three subscales, titled Strategies for Emotional/Behavioral Regulation (10 items), Cooperative Behaviors (5 items), and Prosocial Skills (4 items). CFA results supported a good model fit of the data for a three-factor solution compared to a single-factor solution. Similarly, reliability indices for each subscale were within the acceptable range ($a$ = .60-.78), with the total scale exhibiting evidence of high internal consistency ($a$ = .86).

Overall, the psychometric results supported the use of a modified version of the SEL Skills Class Assessment (SELS-CA) for evaluation purposes of school interventions based on the *Open Circle* curriculum. Considering that the primary goal of the SEL interventions include promoting social and emotional competencies (Cook et al., 2015; Jones & Doolittle, 2017), the use of SELS-CA is recommended to researchers and teachers who want to assess how students' development in self-regulation strategies, cooperation with others, and social skills are influenced by class-level interventions. As the SELS-CA is a curriculum-based measurement, it will be a particularly useful tool in evaluating the effectiveness of the *Open Circle* SEL program. Considering the robustness of the measurement to identify students' SEL skills, however, the SELS-CA can be widely employed to inform wide-ranging interventions for improving specific SEL outcomes.

## Implications for Research and Practice

Results from our study offer several implications for research and practice. First, results of the psychometric analyses support its structural validity and reliability. Indeed, the results of EFA provide evidence for the three-dimensional structure of the SELS-CA, which is comprised of three distinct subscales pertaining to strategies for emotional/behavioral regulation, cooperative behaviors, and prosocial skills. Since using a robust and valid measurement is essential to evaluating the effectiveness of SEL programs, researchers interested in evaluating student outcomes resulting from implementation of the *Open Circle's* SEL program can employ this instrument to assess teachers' perceptions of their students' SEL skills development as a pre- and post-test or combine it with other related measures for a more comprehensive evaluation approach.

Future efforts to further validate the SELS-CA with diverse student populations in different school and community settings are also needed. As this study provided initial statistics of the SELS-CA scores of elementary school students, this data could serve as a reference point and inform future studies examining normative ranges of SELS-CA scores.

Secondly, teachers and administrators who are interested in the SEL skills of elementary students can employ the SELS-CA to collect baseline data to understand each student's developmental and SEL needs and inform intervention. Sharing social, emotional, and behavioral data collected by the school with students and parents would serve as an important step in engaging all stakeholders in SEL improvement efforts. School–community partnerships are especially salient in pursuing educational reform in urban settings (Valli et al., 2016), and utilizing tools that have been validated with and are sensitive to diverse students is an important first step in building trust in the school's evaluation and intervention practices. Soliciting parent and community feedback in the selection of subsequent SEL interventions using the SELS-CA to collect and share pre- and post-test data can enhance communication between school and community and promote accountability. Such data-based communication can serve as an opening for additional discussion regarding the mental health and educational aspects of SEL (Ice et al., 2015), ushering new opportunities for school–community partnerships focusing on awareness and optimization of school and community voices and resources to improve SEL outcomes.

## Limitations

Our study presents several limitations that should be noted. First, this study used a dataset that only consisted of the SELS-CA scores of Grade 2–5 elementary students in one target school in the Southeastern U.S. Although the dataset was numerically adequate and consisted of diverse students in terms of race/ethnicity, socioeconomic status, and achievement, psychometric results are always sample dependent. A potential limitation of our study is that in our sample, surveys were completed by four teachers who taught varying grade levels, potentially resulting in clustering. It is possible that the SELS-CA may perform differently across student samples. Future studies examining this scale with elementary student populations should consider consistent reporting of a range of psychometric data pertaining to reliability and validity, and include diverse geographical samples to enhance future efforts toward a comprehensive psychometric evaluation. Although the SELS-CA indicated an overall good fit as a SEL skills measurement, further research comparing the SELS-CA with other related measures would increase the validity and applicability of the measurement in terms of convergent and discriminant validity. Secondly, as the SELS-CA only includes teacher ratings, there is a possibility that the scores fail to reflect the actual SEL skills of students. As Haggerty and colleagues (2011) denoted, diversifying the subjects of evaluation is helpful when employing SEL measures and allows for a more precise understanding of each student's SEL development. Triangulating SELS-CA scores with observational and multiple

reporter data, including parents/caregivers and students, will provide a more accurate evaluation of SEL skills and lend credence to obtained scores.

## Conclusion

Beyond implementing evidence-based curricula, SEL researchers and practitioners need access to valid measurements that can efficiently evaluate curricula and accurately determine intervention effects. Results of our psychometric evaluation of the SEL Skills Class Assessment (SELS-CA) indicate these instruments have promise as the accompanying measurement tool of the SEL curriculum *Open Circle*. Findings from our study can be used to further advance research in SEL implementation and evaluation studies using *Open Circle* and aiming to improve strategies for emotional/behavioral regulation, cooperative behaviors, and prosocial skills with students in Grades K–5.

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